THE INTERSECTION OF RACE, GENDER, AND PRIMARY CARE: RESULTS FROM THE WOMEN PHYSICIANS' HEALTH STUDY

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The Women Physicians' Health Study is a nationally distributed mailed questionnaire survey of a random sample of 4501 female physicians. We examined differences in the professional characteristics and personal health habits of minority women physicians compared to other women physicians, with regard to the choice of primary care specialties, type or location of practice site, and career satisfaction. Most women physicians were self-described as non-Hispanic white (77.4%), with 13% Asians, and few blacks (4.3%) or Hispanics (5.2%). Blacks and Hispanics were more likely to choose primary care specialties (61.6% and 57.9%, respectively, vs. 49.3% of whites, $p < 0.05$). Black and Hispanic physicians were most likely to practice in urban areas (71.8% and 72.2%, respectively, $p < 0.001$). Minority physicians were most likely to report spending some time each week on clinical work for which they did not expect compensation. Black physicians were least likely to report high levels of work control and were least likely to be satisfied with their careers. While most physicians were compliant with the examined recommendations of the U.S. Preventive Services Task Force, we did find significant differences by ethnicity in compliance with clinical breast exams, mammograms, and pap smears. In conclusion, there continues to be fewer blacks and Hispanics in the U.S. physician workforce than in the general population. Minority women physicians are more likely to provide primary care services in communities that have been traditionally underserved and may also report higher rates of career dissatisfaction. (*J Natl Med Assoc.* 2000;92:472–480.)

Key words: Ethnicity ♦ physicians ♦ professional characteristics

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The intersection of race and gender may be particularly important in the physician workforce. Minority women are the fastest growing segment of medical school classes. Although the number of medical school marticulants, in general, and minority marticulants, in particular, has been declining, minority women have been increasing their representation in medical school at a faster rate than non-minority women and minority men and currently comprise about 55% of the minority entering class.[1–3]

After completing medical school, both minority and women physicians are more likely to choose primary care specialities.[1,4–11] A disproportionate

amount of the care for underserved and minority communities have fallen on the shoulders of minority physicians. Patients from ethnic minority and underserved populations are more likely to identify their usual source of care as a minority physician's practice and minority physicians report caring for a higher proportion of minority patients.[5,12,13]

In addition, several recent studies indicate women physicians are more likely to prescribe primary care services. The rates of prescription of preventive services and screening by Pap smear and mammography are higher among female physicians than male physicians, particularly if the physician is an internist or family practitioner.[14–17] Female physicians are also more likely than male physicians to report reviewing patients' health practices and providing systematic counseling.[18,19]

Physician counseling during the prescription of preventive health services remains important. Women physicians are reported to have communications skills that are more likely to result in patient satisfaction and improved health outcomes.[20,21] Others have shown that physicians "preach" what they practice. Those physicians that practice certain personal preventive care are more likely to discuss these preventive services with their patients.[22,23]

For these reasons the professional characteristics and personal health habits of minority women physicians are important as we evaluate the medical profession's ability to provide preventive services for all segments of the U.S. population. Women physicians from minority subgroups may be providing a significant portion of the primary care for underserved and minority communities. We hypothesized that, among women physicians, physicians belonging to ethnic minority subgroups are still more likely to be primary care specialists than are their white counterparts. We undertook this analysis to answer the following questions: Are there differences in the professional characteristics of minority women physicians compared to other women, in terms of the choice of primary care specialties, type or location of practice site, and career satisfaction? Because personal health habits can be thought of as an indicator of the type of primary care offered, we were also interested in whether there are differences in personal health habits of minority physicians compared to their white colleagues.

METHODS

The design and methods of the Women Physicians' Health Study (WPHS) have been more fully described elsewhere, as have basic characteristics of the population.[24,25] The WPHS surveyed a stratified random sample of U.S. women doctors; the sampling frame is based on the American Medical Association's Physician Masterfile, a data base intended to record all doctors (M.D.s) residing in the U.S. and possessions. Using a sampling scheme stratified by decade of graduation from medical school, we randomly selected 2500 women from each of the last four decades' graduating classes (1950 through 1989). We over-sampled older women physicians, a population that would otherwise have been sparsely represented by proportional allocation because of the recent increase in numbers of women physicians. We included active, part-time, professionally inactive, and retired physicians, aged 30 to 70 years, who were not in residency training programs in September 1993, when the sampling frame was constructed. In that month, the first of four mailings was sent out; each mailing contained a cover letter and a self-administered four-page questionnaire. Enrollment was closed in October 1994 (final number was 4501).

Of the potential respondents, an estimated 23% were ineligible to participate because their addresses were wrong, or they were male, deceased, living out of the country, or interns or residents. Our response rate was 59% of physicians eligible to participate. We compared respondents and nonrespondents in three ways: we used our phone survey (comparing our phone-surveyed random sample of 200 nonrespondents with all the written survey respondents), the AMA Physician Masterfile (contrasting all respondents with all nonrespondents), and an examination of survey mailing waves (all respondents, from wave 1 through 4) to compare respondents and nonrespondents regarding a large number of key variables. From these three investigations, we found that nonrespondents were less likely than were respondents to be board-certified. However, respondents and nonrespondents did not consistently or substantively differ on other tested measures, including age, ethnicity, marital status, number of children, alcohol consumption, fat intake, exercise, smoking status, hours worked per week, frequency of being a primary care practitioner, per-

sonal income, or percentage actively practicing medicine.

Based on these findings, we weighted the data by decade of graduation (to adjust for our stratified sampling scheme), and by decade-specific response rate and board-certification status (to adjust for our identified response bias), allowing us to make inference to the entire population of women physicians graduating from medical school between 1950 and 1989.

Throughout this report we used several terms that should be defined. The ethnic categories used in this report correspond to those used by the US Census Bureau and the American Medical Association. Black, Mexican American, American Indian/Alaska native, and Mainland Puerto Rican medical school graduates have been designated underrepresented minorities by the Association of American Medical Colleges (AAMC). In this report, the terms "ethnic minorities" or "minorities" describe physicians self-defined as Hispanic/Latino, black/African American, or Asian/Pacific Islander. We used the term "underrepresented minorities" to describe those physicians who characterize themselves as African American/black or Hispanic/Latino.

Respondents were asked to identify their country of origin (U.S. vs. other) and ethnicity (Hispanic/Latino, black/African American, white/non-Hispanic, Asian American/Pacific Islander, or other). In addition, we queried age, number of hours worked per week, and number of hours of pro bono work as continuous variables. Residency training, board certification status, practice site, and income were queried as categorical variables. Dietary fat intake was measured using the block fat score.[26] Compliance with the following recommended U.S. Preventive Services Task Force screening recommendations was examined: blood pressure testing, cholesterol screening, Pap smear, clinical breast exam, and mammogram.[27] Respondents were also asked to respond, using a five-point Likert scale (Response set 1: always, almost always, usually, sometimes, rarely or Response set 2: definitely, probably, maybe, probably not, definitely not), to the following questions: "Do you feel in control of your work environment?", "If you re-lived your life, would you still become a physician?", and "Would you change your specialty?" A three-point scale (severe, moderate, light) was used for the questions "What is your daily stress at work?" and "What is your daily stress at home?"

All analyses were weighted to make inference to the entire population, and standard errors and significance testing (chi-square and *t*-tests) were performed using SUDAAN.[28] Because the four ethnic groups differed significantly on age, we examined age-adjusted percentages and means for some relevant analyses (specialty, percentage board certified, health status, percentage with bad physical or mental health days in the past month, percentage compliant with studied U.S. Preventive Services Task Force recommendations,[27] smoking status, percentage that drink alcohol). However, because we found the differences between adjusted and unadjusted means and percentages were small and because it is not possible using SUDAAN to age-standardize means and medians, we present results from analyses that were not age-standardized.

RESULTS

As shown in Table 1, most women physicians were self-described as white/non-Hispanic, with 13% Asians, and few blacks or Hispanics. Asian women were older, and black women were somewhat younger than Hispanics or whites. Half of Hispanics and most Asians were born outside of the U.S., whereas nearly all blacks and whites were U.S.-born.

Professional Characteristics

Hispanic physicians were least likely and non-Hispanic White physicians most likely to be board-certified (Table 2). Blacks and Hispanics were more likely to choose primary care specialties. Asian physicians were overrepresented in anesthesia and underrepresented in family medicine and public health. Blacks were underrepresented in general practice but especially prevalent in general internal medicine, and Hispanic physicians were more likely to be pediatricians.

Ethnic minority physicians were most likely to report spending some time each week on clinical work for which they did not expect compensation. Black and Hispanic physicians were the most likely to practice in urban areas. Asian physicians were the most likely to have suburban practices, and non-Hispanic white physicians were the most likely to practice in rural areas. Non-Hispanic white physicians were the least likely to work for the government, and were the most likely to work in group practices, whereas Hispanic physicians were the

Table 1. Personal Characteristics*

Variable	Hispanic (n = 171)	Black (n = 131)	Asian (n = 712)	White (n = 3287)	p value†
Total (%)	5.2 (0.5)	4.3 (0.4)	13.0 (0.6)	77.4 (0.8)	
Age (years)					****
30–39	44.6 (4.9)	60.3 (4.8)	24.8 (2.3)	47.7 (0.9)	
40–49	42.1 (4.7)	29.8 (4.4)	39.6 (2.3)	34.0 (0.9)	
50–59	8.8 (1.9)	8.0 (2.4)	28.7 (1.7)	12.7 (0.5)	
60–70	4.5 (1.1)	1.9 (0.6)	6.8 (0.6)	5.5 (0.2)	
Mean age (years)	41.3 (0.6)	39.0 (0.6)	45.8 (0.4)	41.8 (0.1)	****
Birthplace (%)					
United States	50.3 (5.2)	87.2 (3.6)	18.3 (2.1)	89.0 (0.7)	
Other countries	49.7 (5.2)	12.8 (3.6)	81.7 (2.1)	11.0 (0.7)	****

*Reported as percentage (standard error) unless otherwise noted.
†$p \leq 0.0001$ (****).

least likely to work in group practices. Asian physicians were the least likely to work in medical schools, and black physicians were the least likely to work in hospitals and the most likely to work in government or "other" settings. Asians earned most, and Hispanics least, in hourly and median personal incomes.

Career Satisfaction

Hispanics reported the highest amount of personal work control and career satisfaction (Table 3). However, black physicians were the least likely to report high levels of work control and the least likely to be satisfied with their careers. Asians were the most likely to want to again become physicians if they were reliving their lives (although they were also the most likely to want to change their specialty). Although the total numbers were small, when stratified by country of birth, foreign-born Hispanic physicians had the highest career satisfaction and work control and were the most likely to become a physician again (not shown). Foreign-born Asian physicians were the most likely to choose a different specialty.

Personal Health Habits

In their personal screening practices (Table 4), most physicians from all ethnic groups complied with the examined age-appropriate recommendations of the U.S. Preventive Services Task Force.[27] However, there were significant differences by ethnicity for some of the recommended screening tests. Asian physicians were least likely to comply with clinical breast exams and Pap smears and black physicians were least likely to report compliance with mammograms.

However, with respect to behavioral risk factors, Asians were most likely to be never-smokers, were least likely to be current smokers, and were most likely to abstain totally from drinking alcohol and to only consume small amounts when they did drink. White physicians reported the most, and black and Hispanic physicians the least exercise, with a higher percentage of black physicians reporting no exercise at all during the week. In addition, a higher proportion of minority physicians reported eating fewer than the recommended five servings of fruits and vegetables daily. Hispanic physicians also reported the highest block fat scores with blacks and Asians reporting the lowest.

DISCUSSION

In this report, we sought to describe the professional characteristics and personal health habits of women physicians stratified by ethnicity. We found black and Hispanic women physicians more likely to choose primary care specialties than their white colleagues. Black and Hispanic physicians are also more likely to practice in nonsuburban areas (e.g., areas more likely to have a physician shortage). Other authors have found that patients cared for in the practices of minority physicians also tend to be sicker and are more likely to be covered only by Medicaid or uninsured.[4,11,12] Because minority physicians provide a disproportionate share of the care to sicker and medically indigent patients, we won-

Table 2. Professional Characteristics*

Variable	Hispanic	Black	Asian	White	p value†
Board certified (%)	33.0 (4.0)	52.1 (5.2)	52.7 (2.4)	66.9 (1.2)	****
Primary care (%)‡	57.9 (4.8)	61.6 (4.9)	52.0 (2.4)	49.3 (1.1)	*
Specialty (%)					****
Anesthesiology	4.5 (1.8)	6.8 (2.3)	10.1 (1.4)	4.7 (0.5)	
Dermatology	0.7 (0.5)	0.3 (0.3)	1.3 (0.6)	2.3 (0.3)	
Emergency medicine	0.0 (–)	2.0 (1.3)	1.2 (0.5)	2.9 (0.4)	
Family medicine	10.4 (2.9)	8.1 (2.7)	5.4 (1.0)	8.8 (0.6)	
General practice	6.6 (2.8)	1.8 (1.8)	7.6 (1.3)	2.9 (0.4)	
General internal medicine	8.5 (2.7)	21.0 (4.3)	15.1 (1.9)	11.9 (0.7)	
Medical subspecialty	10.9 (3.1)	6.8 (2.6)	8.7 (1.5)	9.0 (0.6)	
Neurology	0.4 (0.4)	0.8 (0.8)	1.3 (0.7)	1.4 (0.2)	
Ophthalmology	1.3 (0.7)	3.9 (2.1)	1.5 (0.6)	2.8 (0.4)	
Ob/Gyn	5.3 (2.0)	9.9 (3.4)	5.4 (1.0)	8.9 (0.7)	
Pathology	3.3 (1.7)	2.7 (1.5)	5.0 (0.8)	3.5 (0.4)	
Pediatrics	25.0 (4.2)	18.4 (3.9)	18.4 (1.8)	14.8 (0.7)	
Public health	2.1 (1.6)	2.4 (1.2)	0.2 (0.2)	2.0 (0.3)	
Psychiatry	10.4 (3.0)	8.0 (2.6)	10.6 (1.5)	11.4 (0.7)	
Radiology	3.9 (2.2)	1.0 (1.0)	2.3 (0.6)	3.6 (0.4)	
Surgery-general	0.2 (0.2)	0.0 (–)	0.4 (0.3)	1.4 (0.3)	
Surgery-subspecialty	3.2 (1.8)	3.1 (2.0)	1.2 (0.6)	3.1 (0.4)	
Other	3.3 (1.3)	2.9 (1.5)	4.4 (0.8)	4.4 (0.4)	
Practice location (%)					****
Urban	72.2 (4.4)	71.8 (4.8)	53.1 (2.4)	54.3 (1.1)	
Suburban	18.6 (3.8)	20.4 (4.3)	36.7 (2.3)	35.0 (1.1)	
Rural	9.2 (2.8)	7.8 (3.1)	10.1 (1.5)	10.7 (0.7)	
Practice site (%)					****
Solo	19.9 (3.6)	15.0 (3.8)	20.8 (1.8)	15.7 (0.8)	
Two doctors	5.8 (2.4)	2.6 (1.5)	5.5 (1.1)	6.5 (0.6)	
Group	20.2 (3.9)	23.5 (4.5)	24.4 (2.1)	28.1 (1.0)	
Hospital	24.6 (4.4)	16.0 (3.4)	25.2 (2.2)	22.8 (0.9)	
Medical school	9.0 (2.9)	13.1 (3.6)	5.2 (1.0)	10.8 (0.7)	
Government	12.8 (3.4)	18.5 (4.1)	11.6 (1.5)	7.2 (0.6)	
Not active	3.8 (2.0)	2.0 (1.2)	2.2 (0.7)	3.0 (0.3)	
Other	3.9 (1.6)	9.4 (2.5)	5.1 (1.0)	5.8 (0.5)	
Income/h (%)					**
$0–36	46.9 (5.6)	41.7 (5.6)	36.3 (2.8)	40.0 (1.2)	
$37–59	30.9 (5.1)	21.5 (4.5)	27.5 (2.4)	32.2 (1.1)	
$>59	22.2 (4.4)	36.8 (5.6)	36.2 (2.5)	27.8 (1.0)	
Personal income§	63 (4.1)	75 (7.4)	83 (3.6)	72 (1.2)	**
Clinical hours (h/wk)¶	37.2 (1.8)	34.5 (2.1)	38.7 (0.2)	35.8 (1.1)	****
Non-clinical hours (h/wk)¶	5.9 (1.0)	7.7 (1.0)	3.5 (0.3)	5.0 (0.3)	****
Pro bono (%)					**
None	46.1 (5.0)	40.1 (5.1)	43.2 (2.5)	47.2 (1.1)	
1–5 (h/wk)	31.6 (4.5)	42.7 (5.3)	30.1 (2.1)	36.0 (1.1)	
6–10 (h/wk)	18.4 (4.0)	10.8 (2.8)	17.3 (2.0)	12.3 (0.7)	
>10 (h/wk)	3.9 (1.7)	6.4 (2.5)	9.4 (1.6)	4.6 (0.5)	

*Reported as percent (standard error) unless otherwise noted.
†$p < 0.05$ (*); $p \leq 0.01$ (**); $p \leq 0.0001$ (****).
‡Primary care physicians include: Family Medicine, General Practice, General Internal Medicine, Pediatrics, Obstetrics & Gynecology and Public Health.
§Reported as median income in thousands of dollars.
¶Reported as median number of hours/week.

Table 3. Markers of Career Satisfaction Stratified by Ethnicity*

Variable	Hispanic	Black	Asian	White	p value†
Work control					****
Always/almost always	43.7 (4.9)	21.5 (4.4)	32.8 (2.3)	26.0 (1.0)	
Usually	34.8 (4.8)	46.0 (5.3)	44.7 (2.4)	39.7 (1.1)	
Sometimes	17.0 (3.6)	22.6 (3.9)	17.7 (2.0)	26.5 (1.0)	
Rarely/never	4.4 (2.0)	9.9 (3.1)	4.8 (1.0)	7.8 (0.6)	
Career satisfaction					****
Always/almost always	65.3 (4.7)	52.2 (5.2)	54.0 (2.4)	47.3 (1.1)	
Usually	25.1 (4.3)	27.6 (4.4)	35.5 (2.3)	36.3 (1.1)	
Sometimes/rarely/never	9.6 (2.8)	20.2 (4.0)	10.5 (1.6)	16.4 (0.8)	
Would become a physician again					****
Definitely/probably	72.2 (4.5)	71.9 (4.7)	77.3 (2.1)	67.0 (1.1)	
Maybe	9.1 (2.7)	11.2 (3.1)	12.4 (1.6)	17.1 (0.9)	
Probably not/definitely not	18.7 (4.0)	17.0 (4.0)	10.2 (1.6)	15.9 (0.9)	
Would change specialty					****
Definitely/probably	26.7 (4.5)	19.1 (4.3)	30.1 (2.1)	18.1 (0.8)	
Maybe	7.6 (2.5)	22.9 (4.5)	17.2 (1.9)	18.2 (0.9)	
Probably not/definitely not	65.6 (4.7)	58.0 (5.2)	52.6 (2.4)	63.8 (1.1)	

*Reported as percent (standard error) unless otherwise noted.
†$p \leq 0.0001$ (****).

dered whether these women physicians were satisfied with their careers.

Satisfaction with the practice of medicine has been suggested as one predictor of the availability of health care providers.[29] Young female, black, and to a lesser extent Hispanic physicians are most likely to state that they would not again pursue a career in medicine.[30] Increasing dissatisfaction with medicine has been shown to be highest in women and minority physicians and growing with increasing practice administrative requirements, particularly for younger physicians.[8,29,30] In addition, physicians who report giving more free or reduced-fee care are most likely to be dissatisfied with medicine.[30] In this study, we found ethnic minority physicians were most likely to report providing pro bono clinical services. Blacks were most likely to report dissatisfaction with their career, and Hispanic and black physicians were least likely to consider becoming physicians again, although these outcomes tended to vary by physician country of origin.

The extent to which career dissatisfaction in minority physicians is related to administrative and financial burdens of caring for uninsured or underinsured is not clear from these data. Non-white physicians may be most at risk for the financial consequences of inadequate reimbursement, especially in capitated systems, where they are particularly dependent on appropriate adjustment and reimbursement for severity of illness. Although it is beyond the scope of this paper to investigate this possible causal relationship, we suggest further investigation into this and other possible etiologies of disillusionment in medicine among underrepresented minority physicians, as well as, comparisons between U.S.-born vs. foreign-born physicians.

Coupled with recent declines in underrepresented minority matriculants,[1] dissatisfaction with medicine may be an important predictor of the adequacy of the supply of physicians to care for underserved and minority populations. Because of their gender and ethnicity, minority women physicians are often placed in mentoring roles for young female and minority students. Role modeling, based on students' assessments of their mentors' career satisfaction, is particularly influential in the type of specialities chosen by medical students.[31] Career dissatisfaction in this subgroup of physicians may have an important influence on the quality of the mentoring relationship and subsequent pursuit of a career in medicine or primary career by young mentees.

Table 4. Personal Health Habits and Characteristics*

Variable	Hispanic	Black	Asian	White	p value†
Personal health habits					
Cigarette smoking					****
Never	75.8 (4.0)	76.8 (4.4)	93.6 (1.3)	74.9 (0.9)	
Past	17.1 (3.4)	18.2 (3.9)	5.0 (1.1)	21.4 (0.9)	
Current	7.1 (2.6)	5.1 (2.7)	1.4 (0.7)	3.6 (0.4)	
Alcohol consumption					
Consumed alcohol (in past month) (%)	64.6 (4.7)	58.3 (5.2)	41.9 (2.5)	79.9 (0.9)	***
Median no. drinks/wk‡	1.9 (0.3)	1.3 (0.3)	0.4 (0.06)	1.61 (0.2)	****
More than 14 drinks/wk (%)	2.8 (1.9)	0.4 (0.4)	0.0	1.8 (0.3)	****
Physical activity (min/wk)§	122 (18.2)	111 (14.3)	148 (9.9)	180 (4.2)	***
% Inactive¶	6.0 (2.7)	10.4 (3.1)	6.4 (1.3)	3.7 (0.4)	*
Dietary habits					
<5 servings fruits and vegetables/day (%)	84.2 (3.8)	88.4 (3.0)	87.3 (1.7)	78.8 (0.9)	****
No. fruits and vegetables/ day (median)	2.7 (0.2)	2.7 (0.2)	2.8 (0.1)	3.1 (0.01)	****
Block fat score (mean)‖	23.5 (2.4)	18.3 (1.2)	17.5 (0.7)	21.8 (0.4)	****
Personal screening habits††					
Blood pressure testing					
Yes	97.2 (1.7)	98.7 (1.0)	94.9 (1.1)	96.4 (0.4)	NS
No	2.8 (1.7)	1.3 (1.0)	5.1 (1.1)	3.6 (0.4)	
Clinical breast exam					
Yes	71.2 (4.3)	80.9 (4.0)	65.4 (2.3)	80.1 (0.8)	****
No	28.8 (4.3)	19.1 (4.0)	34.6 (2.3)	19.9 (0.8)	
Cholesterol testing					
Yes	90.3 (3.1)	89.1 (3.4)	88.7 (1.6)	88.2 (0.8)	NS
No	9.7 (3.1)	10.9 (3.4)	11.3 (1.6)	11.8 (0.8)	
Pap smear					
Yes	84.1 (3.9)	94.2 (2.7)	79.3 (2.2)	92.5 (0.6)	****
No	15.9 (3.9)	5.8 (2.7)	20.7 (2.2)	7.5 (0.6)	
Mammogram					
Yes	83.4 (5.8)	65.5 (16.2)	71.2 (2.9)	81.7 (1.6)	**
No	16.6 (5.8)	34.5 (16.2)	28.8 (2.9)	18.3 (1.6)	

*Reported as percent (standard error) unless otherwise noted.
†$p < 0.05$ (*); $p \leq 0.01$ (**); $p \leq 0.001$ (***); $p \leq 0.0001$ (****).
‡Includes only those who reported drinking any alcohol: Hispanics: n = 89; black, n = 59; Asian: n = 192; whites: n = 2160.
§Reported as mean no. if minutes per week engaged in leisure time exercise.
¶Percent (standard error) of those who report no leisure time exercise.
‖The block far score[26] identifies individuals with a high or low fat intake.
††Percent (standard error) complying with the following screening recommendations from the U.S. Preventive Services Task Force[27]: cholesterol (check every ≤5 years), blood pressure (every ≤2 years), Pap smears (every ≤3 years if uterus is present), clinical breast examination (every 1–2 years if age 30–39, every ≤1 year if ≥40 years old), and mammography (every ≤2 years if 50–75 years old).

Previous studies have shown that physicians with desirable personal health practices are more likely to counsel patients regarding those health habits.[22,23] For this reason the personal health behaviors of primary care physicians are of interest. The trends found in our results are consistent with national estimates of variations in health behaviors when stratified by ethnicity. However, although we

found similar distributions in health behaviors by ethnicity, women physicians of all ethnicities had lower prevalences of certain behavioral risk factors than did women in the general population.[22] Hahn reported that lack of leisure time physical activity varied from 29.3% among whites to 43.6% in blacks in an analysis of the Behavioral Risk Factor Surveillance System data in women (compared to 3.7% in whites and 10.4% in blacks in WPHS).[36] The national prevalence of current smoking varied from 10.3% in Asians and Pacific Islanders to 21.7% in white women (compared to 1.8% in Asian and 6.9% in Hispanic women physicians).

In addition, we have demonstrated in prior studies that women physicians of all ethnic groups combined exceed national health behavior goals, outperforming women in the general population and other women of high socioeconomic status.[22] In this analysis we found most physicians were compliant with the examined recommendations of the U.S. Preventive Services Task Force.[27] However, we did find significant differences by ethnicity in compliance with clinical breast exams, mammograms, and Pap smears. Despite these differences, women physicians of all ethnicities exceeded age-specific national goals for mammograms and clinical breast exams and exceeded national averages for Pap smears.[32] In addition to being models of healthy behaviors, with probable positive influences on counseling practices, because of their high socioeconomic status and health knowledge, physicians from ethnic minorities may also provide upper estimates of how achievable national health promotion goals are for the general population.[22]

Although the strength of this study lies in the ability to examine the important intersection of race and gender in the physician workforce in a large sample of physicians, there are also limitations. It would be valuable to examine and contrast our finding in a similarly large, nationally representative study of physicians of both genders. Also, our coding strategy and small numbers of American Indians and Native Alaskans limited analyses of the characteristics of this severely underrepresented group. Also, our ability to comment on the contributions of foreign-born physicians to the U.S. physician workforce is limited by the absence of data on the specific country of birth and country of medical school and residency training.

The impact on diversity within the physician work force of recent policy statements limiting the number of graduate medical education positions available to non-US medical school graduates needs to be assessed.[2,3,33] In this study we found half of Hispanic and most Asian physicians were born outside of the United States. This finding suggests that there may be a cultural disconnect between the ethnic groups we describe in the physician workforce and the corresponding groups in the U.S. population. For example, within the U.S. population 75% of Hispanics are either Mexican Americans or Puerto Rican Americans.[34] However, these groups make up less than 50% of entering Hispanic medical students.[1] Cultural backgrounds of physicians may differ substantially from those of their patients, even if their ethnicities seem to be similar, adding another layer of complexity to cultural differences that may exist across racial/ethnic groups.

The results reported here support the need for continued attention to the goal of adequate representation of certain minority groups in the physician workforce. The Women Physicians' Health Study has produced one of the first published descriptions of the differential representation of ethnic minority physicians compared to their prevalence in the general population.[22,25] Women physicians are most likely to be self-described as white/non-Hispanic, with Asians overrepresented in the physician workforce at 13%, and a low overall prevalence of African-American and Hispanic-American women physicians compared to the general population.[22,35] Half of Hispanic, and most Asian physicians were born outside of the United States, whereas nearly all blacks and non-Hispanic whites were U.S.-born. Compared to their white colleagues, women physicians from ethnic minority subgroups are providing a substantial portion of primary care and pro bono care to populations with the highest likelihood of being underserved. We feel these data along with information on racial distributions of current medical students suggest that U.S. medical schools should continue to increase efforts to have graduating classes more closely reflect the diversity in the general population. More work is needed to increase our understanding of the factors that may contribute to underrepresentation, such as career dissatisfaction, so that, as a profession, we can be more responsive to the changing demographics and health needs of the U.S. population.

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